

4/25/01

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Matthew James LEWIS-ABURN and Michelle
Anita LEWIS-ABURN
: A METHOD OF MANUFACTURING A
MOULDED ARTICLE AND A PRODUCT OF THE
METHOD
Docket : ROCKCO P52AUS

The Commissioner of Patents and Trademarks
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Dear Sir:

By way of preliminary amendment, please amend the above identified application as set forth below.

In the Specification:

Please cancel pages 1 and 2 of the specification, in their entirety, in favor of a clean form of pages 1 and 2 of the specification, without any markings thereon, accompanying this response. Also accompanying this response is a copy of the original pages of the specification which show the addition(s) (by red ink) and the deletion(s) (by strikeout) to the canceled specification pages. The amended specification pages do not include any new subject matter and only include the changes which are indicated on the marked-up copy of the specification pages. Please enter the replacement specification pages into the record of this case.

In the Abstract:

Please cancel the abstract, in its entirety, in favor of a clean form of the abstract, without any markings thereon, accompanying this response. Also accompanying this response is a copy of the original abstract which show the addition(s) (by red ink) and the deletion(s) (by strikeout) to the canceled specification pages. Please enter the replacement abstract into the record of this case.

In the Claims:

Please cancel original claims 1-5, without prejudice or disclaimer of the subject matter therein, favor of new claims 6-10.

6. (NEW) A method of manufacturing a moulded product comprising the steps of:

providing a mould conforming to the shape of the product, the mould serving to define one or more moulding surfaces which are to be reproduced in an article formed by means of the mould;

mounting in the mould an article including or forming an image comprising at least one device, logo, letter, word or words or combinations of these in such a way that most, if not all of the article lies within the mould out of contact with the or each moulding surface;

injecting into the mould a supply of polymerisable material so as to immerse the article; the material, at least following polymerisation being flexible and so providing at least in part, a substantially transparent product; and

withdrawing the product from the mould.

7. (NEW) The method of manufacturing according to claim 6, wherein the step of providing product is an article of footwear such as a shoe or swimming fin (also known as a flipper).

8. (NEW) The method according to claim 6, wherein the step of providing the mould conforming to the shape of the product serves also to juxtapose a previously formed or moulded product for attachment to a product formed in the injection step.

9. (NEW) The method according to claim 7, wherein the step of providing the mould conforming to the shape of the product serves also to juxtapose a previously formed or moulded product for attachment to a product formed in the injection step.

10. (NEW) A moulded product which is of flexible plastics material moulded by a method comprising the steps of:

providing a mould conforming to the shape of the product, the mould serving to define one or more moulding surfaces which are to be reproduced in an article formed by means of the mould;

mounting in the mould an article including or forming an image comprising at least one device, logo, letter, word or words or combinations of these in such a way that most, if not all of the article lies within the mould out of contact with the or each moulding surface;

injecting into the mould a supply of polymerisable material so as to immerse the article; the material, at least following polymerisation being flexible and so providing at least in part, a substantially transparent product; and

withdrawing the product from the mould.

4/25/01 3:23 PM

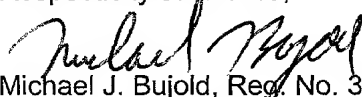
REMARKS

Accompanying this response, please find replacement pages and marked-up pages of the specification and abstract which overcome some informalities noted in the specification on file. The undersigned avers that the enclosed replacement page(s) of the specification do not contain any new matter.

Please consider the newly entered claims and note that the subject matter of amended claims is merely editorially revised and rewritten to bring that subject matter into conformity with the United States claim format and not to overcome any prior art.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,



Michael J. Bujold, Reg. No. 32,018

Customer No. 020210

Davis & Bujold, P.L.L.C.

Fourth Floor

500 North Commercial Street

Manchester NH 03101-1151

Telephone 603-624-9220

Facsimile 603-624-9229

E-mail: patent@davisandbujold.com

A METHOD OF MANUFACTURING A MOULDED ARTICLE AND A PRODUCT OF THE METHOD.

FIELD OF THE INVENTION

This invention relates to a method of manufacturing a moulded article and a product of the method. It is particularly though not exclusively concerned with moulding of footwear including swimming fins.

BACKGROUND OF THE INVENTION

In the manufacture of moulded articles of plastics materials it is known to line the mould with a coating of gel material prior to the injection of the bulk of the plastics material. In this way it is possible to achieve a smooth external surface on the moulded product. The surface of the resulting product if subject to abrasion tends to scuff with a consequent deterioration in appearance. In particular footwear can be readily scuffed on a variety of surfaces and any surface decoration is liable to damage particularly if worn in a waterside or seaside environment.

SUMMARY OF THE INVENTION

According to a first aspect of the present invention there is provided a method of manufacturing a moulded product comprising the steps of:

providing a mould conforming to the shape of the product the mould serving to define one or more moulding surfaces which are to be reproduced in an article formed by means of the mould;

mounting in the mould an article including or forming an image comprising at least one device, logo, letter, word or words or combinations of these in such a way that most, if not all of the article lies within the mould out of contact with the or each moulding surface; and

injecting into the mould a supply of polymerisable material so as to immerse the article; the material, at least following polymerisation being flexible and so providing at least in part, a substantially transparent product; and

withdrawing the product from the mould.

According to a first preferred version of the first aspect of the present invention the step of providing product is an article of footwear such as a shoe or swimming fin (also known as a flipper).

According to a second preferred version of the first aspect of the present invention Or of the first preferred version thereof the step of providing the mould conforming to the shape of the product serves also to juxtapose a previously formed or moulded product for attachment to a product formed in the injection step.

According to a second aspect of the present invention there is provided a moulded product which is of flexible plastics material moulded by the method of the first aspect or any preferred version thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

An exemplary embodiment of the invention will now be described with reference to the accompanying drawings of steps of a method of moulding a swimming fin of which:

Figure 1 shows a side view of a mould in an open configuration;

Figure 2 shows the mould of Figure 1 with the addition of an article;

Figure 3 shows the mould of Figure 2 in a closed configuration; and

Figure 4 shows the mould of Figure 3 opened following a mould injection step.

DETAILED DESCRIPTION OF THE INVENTION

Figure 1

An open mould 11 has internal moulding surface 12, 13 conforming to the surfaces of a swimming fin to be manufactured by means of the mould. The mould 11 includes locating jaws A1, A2 and B1, B2 whose function is described hereafter.

Figure 2

Prior to the moulding of product the moulding surfaces 12, 13 are cleaned and coated with a release agent. An article 14 is mounted by means of lower jaws A1, B1 so as to lie within the mould 11 but clear of the moulding surfaces 12, 13. The article 14 comprises a clear acrylic strip 14A on which an image or series of images is placed whether by

A METHOD OF MANUFACTURING A MOULDED ARTICLE AND A PRODUCT OF THE METHOD.

FIELD OF THE INVENTION

This invention relates to a method of manufacturing a moulded article and a product of the method. It is particularly though not exclusively concerned with moulding of footwear including swimming fins.

BACKGROUND OF THE INVENTION

In the manufacture of moulded articles of plastics materials it is known to line the mould with a coating of gel material prior to the injection of the bulk of the plastics material. In this way it is possible to achieve a smooth external surface on the moulded product. The surface of the resulting product if subject to abrasion tends to scuff with a consequent deterioration in appearance. In particular footwear can be readily scuffed on a variety of surfaces and any surface decoration is liable to damage particularly if worn in a waterside or seaside environment.

SUMMARY OF THE INVENTION

According to a first aspect of the present invention there is provided a method of manufacturing a moulded product comprising the steps of:

providing a mould conforming to the shape of the product the mould serving to define one or more moulding surfaces which are to be reproduced in an article formed by means of the mould;

mounting in the mould an article including or forming an image comprising at least one device, logo, letter, word or words or combinations of these in such a way that most, if not all of the article lies within the mould out of contact with the or each moulding surface; and

injecting into the mould a supply of polymerisable material so as to immerse the article; the material, at least following polymerisation being flexible and so providing at least in part, a substantially transparent product; and

withdrawing the product from the mould.

According to a first preferred version of the first aspect of the present invention the step of providing product is an article of footwear such as a shoe or swimming fin (also known as a flipper).

According to a second preferred version of the first aspect of the present invention Or of the first preferred version thereof the step of providing the mould conforming to the shape of the product serves also to juxtapose a previously formed or moulded product for attachment to a product formed in the injection step.

According to a second aspect of the present invention there is provided a moulded product which is of flexible plastics material moulded by the method of the first aspect or any preferred version thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

An exemplary embodiment of the invention will now be described with reference to the accompanying drawings of steps of a method of moulding a swimming fin of which:

Figure 1 shows a side view of a mould in an open configuration;

Figure 2 shows the mould of Figure 1 with the addition of an article;

Figure 3 shows the mould of Figure 2 in a closed configuration; and

Figure 4 shows the mould of Figure 3 opened following a mould injection step.

DETAILED DESCRIPTION OF THE INVENTION

Figure 1

An open mould 11 has internal moulding surface 12, 13 conforming to the surfaces of a swimming fin to be manufactured by means of the mould. The mould 11 includes locating jaws A1, A2 and B1, B2 whose function is described hereafter.

Figure 2

Prior to the moulding of product the moulding surfaces 12, 13 are cleaned and coated with a release agent. An article 14 is mounted by means of lower jaws A1, B1 so as to lie within the mould 11 but clear of the moulding surfaces 12, 13. The article 14 comprises a clear acrylic strip 14A on which an image or series of images is placed whether by

Abstract

A method of manufacturing a moulded product comprising the steps

5 of: providing a mould conforming to the shape of the product the mould serving to define one or more moulding surfaces which are to be reproduced in an article formed via the mould; mounting in the mould an article including or forming an image comprising at least one device, logo, letter, word or words or combinations of these in such a way that most, if not all of the

10 article lies within the mould out of contact with the or each moulding surface; and injecting into the mould a supply of polymerisable material so as to immerse the article; the material, at least following polymerisation being flexible and so providing at least in part, a substantially transparent product; and withdrawing the product from the mould. Typically the step of providing

15 product is directed to an article of footwear such as a shoe or swimming fin (also known as a flipper). The invention provides for a single stage product or the step of providing the mould conforming to the shape of the product serves also to juxtapose a previously formed or moulded product for attachment to a product formed in the injection step. The invention extends

20 to a moulded product which is of flexible plastics material moulded by way of the method.

ABSTRACT

~~A METHOD OF MANUFACTURING A MOULDED ARTICLE AND A PRODUCT OF THE METHOD~~

A method of manufacturing a moulded product comprising the steps of: providing a mould conforming to the shape of the product the mould serving to define one or more moulding surfaces which are to be reproduced in an article formed ^{View} by means of the mould; mounting in the mould an article including or forming an image comprising at least one device, logo, letter, word or words or combinations of these in such a way that most, if not all of the article lies within the mould out of contact with the or each moulding surface; and injecting into the mould a supply of polymerisable material so as to immerse the article; the material, at least following polymerisation being flexible and so providing at least in part, a substantially transparent product; and withdrawing the product from the mould. Typically the step of providing product is directed to an article of footwear such as a shoe or swimming fin (also known as a flipper). The invention provides for a single stage product or the step of providing the mould conforming to the shape of the product serves also to juxtapose a previously formed or moulded product for attachment to a product formed in the injection step.

The invention extends to a moulded product which is of flexible plastics material moulded by way of the method.